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Charles Kuster
Iowa State University

IOWA Agriculturist

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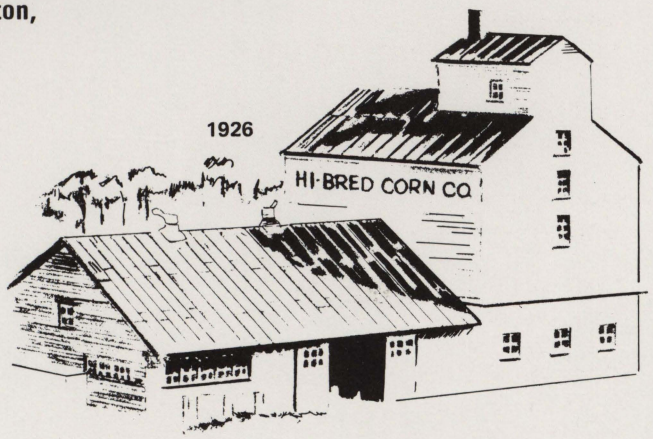

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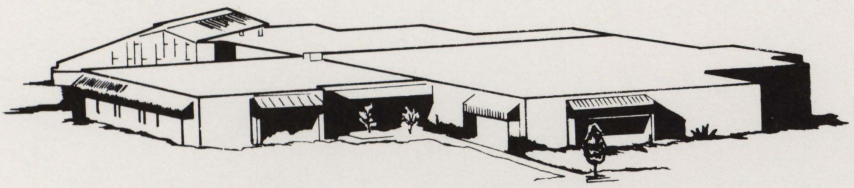

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Vol. 77 Spring, 1976 No. 3

OUR COVER:

The bald eagle population is increasing in Iowa. Although this photograph was taken at a zoo, the national bird is occasionally seen in Iowa's skys. The photographer was Dale Young, a journalism junior from Waterloo, Iowa.

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Where eagles dare

Eagles

by Merritt Benson

It was a made-to-order morning—perfect for bald eagle watching. The large birds had spent the night in a grove on the Nebraska side of the Missouri River, but were now beginning to congregate on a small oxbow on the Iowa side. Breakfast in the form of shad fish was in ample supply there and the big birds, hungry after their long migration, were eating them ravenously.

By mid-morning, eagles seemed to be everywhere, and 78 were counted from the blind. Of these, about 30 per cent were immature eagles, a good sign that eagle populations are on the increase.

The present bald eagle population in the 48 states is estimated to be about 1400 according to Terry Ingram, the president of the Eagle Valley Environmentalists, Inc. (EVE). This figure is in sharp contrast to the estimated 100,000 bald eagles that inhabited the United States at the turn of the century.

In a Des Moines *Register* article Ingram explained why eagle populations have declined. "Encroachment into the eagle's habitat is a big reason for the decline, but the widespread use of DDT for years before it was banned in 1972 is the biggest factor," Ingram said. "DDT is absorbed by the eagle through its food and reduces the calcium in its eggs, causing them to break.

"But since DDT was banned four years ago, there has been a leveling off of the eagle population and even a gradual increase," Ingram said.

This increase in the eagle population can be noted not only in terms of actual numbers, but also by the percentage of immature birds. In 1962-1966, the EVE reported that about 20 per cent of the eagles in the country immature. During the counts taken between 1972-1975 the EVE reported an encouraging 29.5 per cent of the birds to be immature.

The mature eagles are easily distinguished from the chocolate-colored immatures until the age of four years, when they reach maturity and acquire the familiar white head and white tail.

Upon reaching maturity, the female bird, on the average, seems to be slightly larger than the male. Male body length ranges from 30 to 34 inches, as compared with 35 to 37 inches in the female. Wingspread in the male varies from 72 to 85 inches, and runs an impressive 79 to 90 inches in the female.

Besides the size differences between the sexes, there is also a

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while vultures stare

Vultures

by Kathy Treloar

High overhead a vulture soars, gradually circling around and around. Spotting food, it swoops down and tears the carcass to shreds. Soon joined by other vultures, they hungrily feast on the remains. It had been a long time since they had eaten. This may be a typical scene from the desert, but it is also fairly common to Iowa.

Most Iowans do not realize that turkey vultures or turkey buzzards are quite common in Iowa. They are frequently seen in southwest Iowa, but are not limited to that area. For years, a dozen or so vultures roosted near the Boone River by the Ledges State Park, according to Robert Moorman, Iowa State University extension wildlife conservationist.

The vultures arrive in central Iowa about April 1 and leave during mid-October, before it gets extremely cold. "Vultures are warm-blooded birds, but they seem almost cold-blooded," Moorman said. These birds are inactive in cooler weather. Even in mid-summer they do not leave the roost until they have warmed up by spreading their wings toward the sun. After warming their bodies, they will search for food.

Moorman adopted a homeless young vulture quite a few years ago. When nights became cool, the vulture would not eat food set out for him. In the fall Moorman brought the vulture and the food inside next to the furnace. "The bird died of starvation because he wasn't warm enough to eat."

When the birds are out in nature, most people do not realize they have seen a vulture, they think it was a hawk or another large bird, Moorman said. Turkey vultures are big birds, with wing spans of up to six feet. They sail effortlessly on the wind, seldom beating their wings. Warm air currents are taken advantage of and the buzzard will sail along at 40 miles per hour in them. Each individual feather makes slight adjustments to the air, which gives the bird a little more lift.

Moorman remembered trying to teach his young vulture to fly. "I took it to the pasture and threw it six to eight feet in the air. He was just a little vulture with a wing span of four and one half feet. He spread his wings and sailed, but he wouldn't beat his wings to get higher." The pet vulture never learned that vultures, like airplanes, are to land into the wind. "Sometimes he would land gracefully, but half the time he would land in the wrong wind direction. He'd roll head over heels,

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stand up and shake his head like he was wondering who pushed him over."

Moorman said vultures learn flying from their parents. "I was teaching my vulture to fly from the ground up instead of from a branch down."

Vultures have to learn to fly up to higher altitudes. They will spiral for hours usually at great heights, appearing as mere specks in the sky. They may fly up from 10,000 to 12,000 feet in the air, which is about the height of Pike's Peak. Vultures can be easily recognized at great heights by the V-like angle of their wings. Most other Iowa birds fly with their wings straight out.

Even though vultures are graceful in the air, they waddle clumsily on the ground. "They appear almost stupid," Moorman said. Their feet are not strong and can not carry anything in their grasp.

Their wings are black, as is the rest of the bird. But the front underside of the wing looks lighter in color. When vultures are flying, it looks like two different colors on the wing.

Legend says that all birds were once naked and had to go get their feathers. The turkey vulture was clean, but on the way to get his feathers, he stopped to eat dead meat and got dirty.

Another legend attempts to explain the vulture's naked head. An Indian sun god asked the vulture to give him a ride one day. The vulture dropped him into a tree. Angrily, the god covered himself with animal skins and played dead. When the buzzard came down to peck at him the god jumped up and scalped the buzzard. Even today he has a naked head.

The vultures' senses are well-developed. Eyesight is extremely precise. They can see seven times better than we can. Vultures can spot dead animals at heights of 12,000 feet.

Buzzards can see one another at great distances. They can tell by another bird's actions when it finds food. If you see one buzzard at a carcass, soon a number of them will appear.

Turkey vultures are only one of the vulture species that uses their sense of smell to help them locate food. Vultures have been known to soar around gas leaks, expecting to find food. Moorman said that they covered up animal blood in the ground and soon they had turkey vultures soaring overhead looking for a carcass.

Vultures seldom attack anything that is alive. They are scavengers, contented to sit and wait for the animal to die first. Their bills are not strong enough to kill animals or to rip animal hides open, so they will wait for the carcass to spoil or until some other animal tears the skin. This makes it easier for them to get to the soft insides.

An old Indian legend explains how vultures became scavengers. The chief of all the birds gave vultures the job of cleaning up all the dead meat on earth. Even though the vulture eats dead meat, he is allowed to fly in the clean air and bathe in fresh water because he has a pure heart.

Vultures are clean birds. The naked head and neck can easily be cleaned by water baths or sunlight. This kills most germs the bird might get from the carcass.

Most people think vultures carry diseases from eating dead meat. They actually clean up diseased animals that may be a threat to other animals or humans. The strong digestive juices in the bird's crop also destroys germs that the buzzard might pick up from the meat.

Vultures will continue feeding until their crop is full. The crop sorts undigested food. Moorman said that 40 vultures around one dead cow can clean it up pretty fast.

Eating dead meat does not cause vultures to have the strong odor they have, Moorman said. "The odor is somewhat offensive to humans and apparently to other animals. The odor smells somewhat like a dead meat odor, but not a rotten, stinking odor. It's strong and penetrating, not exactly like anything else I've ever smelled," Moorman said. Even his dog stayed away from the vulture odor. Moorman had a pair of gloves he used when handling his vulture. The young dog tore everything in sight to pieces, but would not touch his vulture gloves.

A well known ornithologist in southeast Iowa, Gladys Black, said

she has seen three good-size vulture roosts in the Red Rock Dam area on the Des Moines River. "One hardly ever sees the vultures unless you are really looking for them," she said.

The vultures in the Red Rock area are usually gone by October 20, returning in January during the warm weather. But when it turned cold, they flew back south. This was highly unusual because the buzzards seldom come back in January. Most turkey vultures fly into the Red Rock area around the middle of March and stay.

Black recalled a young farmer of this area who had a turkey vulture for a pet when he was a child. "It followed him around everywhere. People driving by almost wrecked their cars when they saw a huge buzzard following a small boy," Black mused.

Vultures nest in standing trees or tree hollows and can nest on rock ledges or cliffs. Hollow logs are also favorite nesting sites, which does not make them difficult to find.

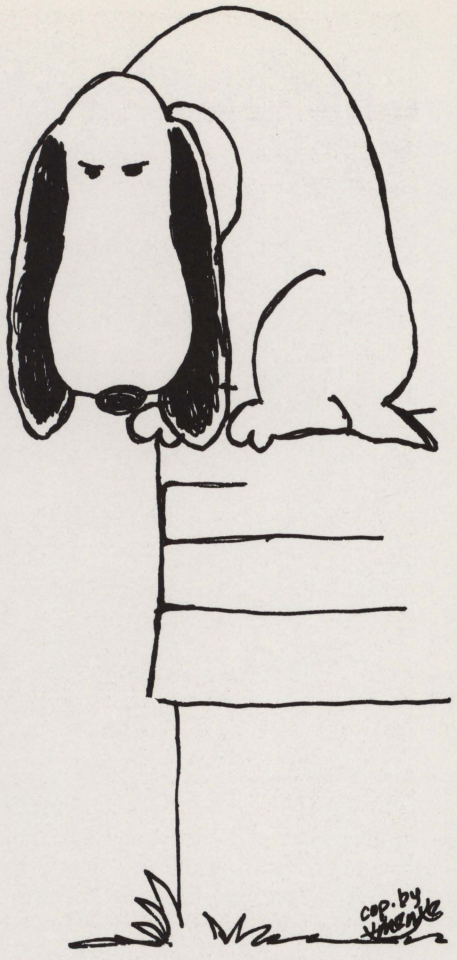
Two brown speckled eggs that take a month to hatch are laid in the nest. The young are covered with white, inch-long down for about two weeks. Coal black feathers will replace the down. The young have black heads, but the adults have the naked heads with some red coloring.

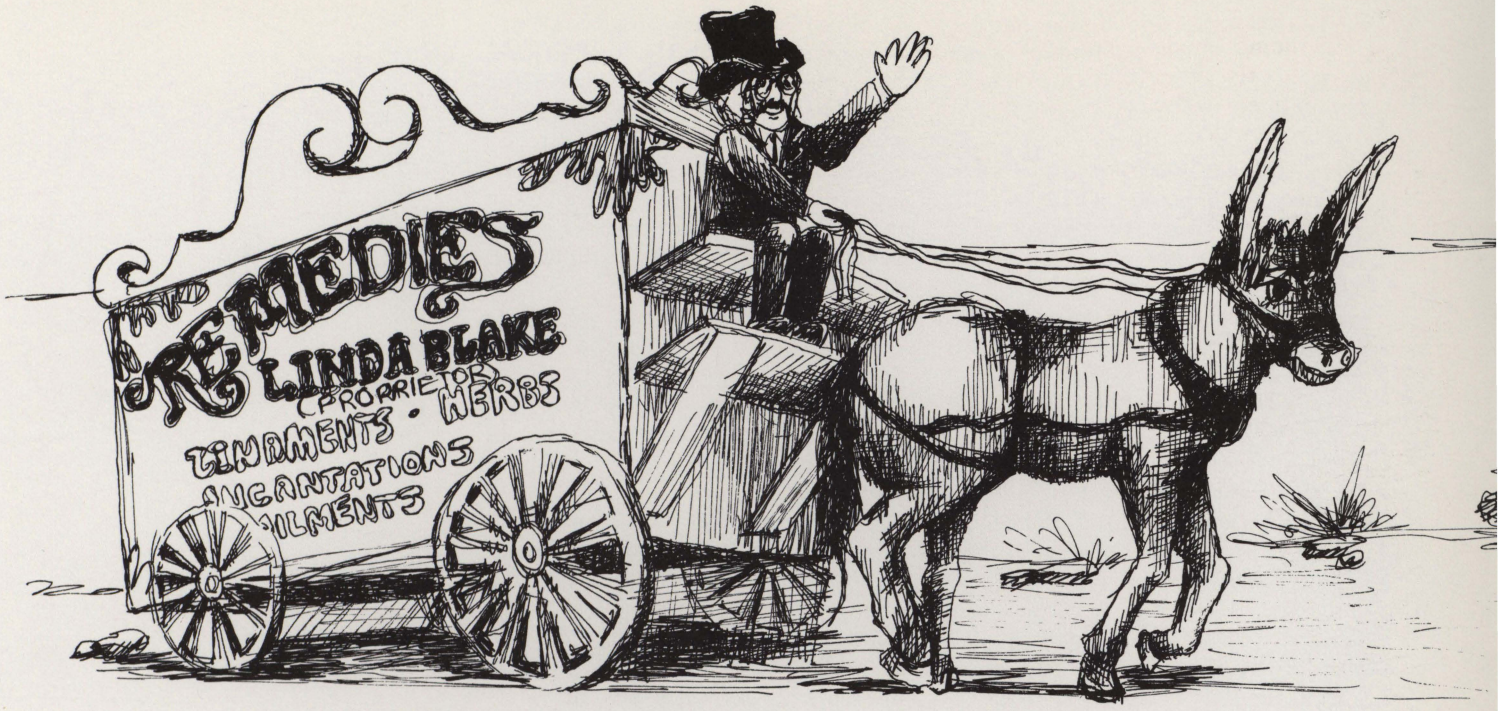
Adults feed the young by "coughing up" the food. They feed on a carcass and store the food in their crop. When they fly back to the nest, they regurgitate warmed food to their young.

Iowa's turkey vultures are common to all parts ot the United States. But one specie, the black vulture, frequents only the southern United States. Both species of vultures are relatives of the California condor.

Turkey vultures are considered migratory birds and all migratory birds are protected by federal law, with a minimum fine of $100 for killing one. Most people do not bother the vulture, only the pot-shot hunter who shoots at any bird.

There has never been any vultures reported attacking man. And there is only one instance of a vulture killing a man. In 456 B.C. Aeschylus was struck dead when a vulture lost its grip on a tortoise shell and dropped the shell on his head.





In the obscure depths of the mucky stable, a ghostly figure cowered near the stricken beast. Softly, eerily, a croon carried from the mystical forms in the darkened corner. "Deliver me from my enemies, O my God. Keep me away from those who rise against me. . ."

No, not a scene from an Edgar Allen Poe story but a cure for the fever in horses. Believe it or not, during midevil times, Psalms, preverably Psalms 59 and 61, were sung to horses to cure them of fever and other maladies that might befall them.

Such practices as this persisted well into latter centuries. A look back offers humor and absurdity, as many cruel and inhumane methods of treating ailments persisted before the advent of modern veterinary medicine.

The practice of "healing" is as old as civilization. Throughout time, methods of treatment denoted the era of which it was practiced.

During the time of the Roman Empire, diseases were believed to be the result of divine origin according to Miller J. Stewart in his article titled, "Fearless Farriers: Frightful Cures."

It was not uncommon to see a cross burned in the forehead of an animal. Roman farmers believed this warded off evil plagues.

Cato, a Roman farmer during the second century, A.D., prescribed treatment for sick oxen as follows:

"If you are afraid of sickness, give them while still in good health three grains fo salt, three leaves of bay, three shreds of cut leek (**herb**), three spikes of bulbed leek, three spikes of garlic, three grains of incense, three plants of the Sabine herb, three leaves of rue, three tendrils of the white vine, white beans, three live coals, and three sextaril of wine."

"This cure must be pounded together in a mortar and administered from a wooden dish, by a person who has been fasting. Both the man and ox must stand upright to give and receive the medicine," Stewart writes.

Cato also prescribed the use of cabbage to cure human ailments. "He prescribed cabbage as the universal panacea for all the ills that flesh is heir to. Cabbage in any form, raw or cooked, domestic or wild, alone or mixed with other greenery would cure dysentery, constipation, gout, cancerous ulcers, pains in the heart, liver, lungs or stomach and even aid in the knitting of fractured bones."

Most organic cures were aided by spiritual help during this period of time. For example, how does an animal dislodge an insect after swallowing it? Simply sing a song. But, be sure to sing into the left ear if the animal is a female and the right ear if the animal is male if this remedy is to be effective!

Should an animal suffer from erysipelas, the beast was led into the middle of a running stream and left to stand there while a "doctor" chanted an incantation (magic formula) into the patient's ear.

A mixture of deer blood and salt was a sure cure for pestilence. "But if the horse suffered from a fever, the disease would retire from them and the hour of life prolonged, if the farmer would smear the animal with deer kidney fat," writes Stewart.

With the coming of the 16th and 17th centuries, the "doctoring" was left mainly to the farrier (blacksmith). With him, the farrier brought an era of blood and misery to the patients he treated.

How did the farriers find themselves in the position of the healer? "Because, horse shoers handle horses all the time," says Dr. Bernark Skold, associate professor of anatomy at Iowa State University. "I suppose that 90 per cent of the pathological conditions that occur in the horse, occur in the leg. Of those, 95 per cent are in the foot."

One of the favorite cures of the day was "bleeding." With reference to **The Compleat Horseman and Expert Farrier** by Thomas De Gray, to cure colds, fever or frenzy, bleed the horse from the temple veins. However, to treat quinsy (throat inflammation) and

strangles, the veins of the throat must be opened.

Stewart writes, "a simple cure for the staggers was to ram 'good and hard,' the larger end of a riding whip into either nostril of a nose which caused the hapless beast to 'bleed well.' After this rude shock, medicinal soaked rags would be stuffed into the horse's ears which then would be sewn shut. This may not have cured the stagger, but it produced a lot of deaf horses!"

Dr. Skold attributes the practice of bleeding to the fact that people of that era felt that by letting out a certain amount of blood, it would reduce the inflamation, in man or animal.

"In man, this was commonly done by barbers," he says. "Actually, the reason for the barber pole with the stripe, signified he was a bleeder. When people were ill and had to be bled, they went to the barber who displayed this spiral pole."

Bloodletting was not confined to the inflicted animal during the midevil period. "Muscle strain, a quite common occurence in horses, called for application of slain puppy dog blood on the area," writes Stewart with reference to **The Compleat Horseman and Expert Farrier.**

"To cure shoulder strain, some farriers cut a hole in the middle of the animal's shoulder and then rammed a cold iron rod eight or 10 inches up between the shoulder blades. After this they burned around the shoulders with a hot iron and then applied a composition of pitch, rosin and tar to the site. I cannot say I ever knew a horse cured by this method, but I have known many a lame one ever after."

Though most of the superstitions and remedies propagated in Europe, the American Indian undauntedly chose herbs and spices to treat their own diseased animals and people. Indian women would use the rattles of rattlesnakes for relaxation of the uterus during childbirth, says Dr. Skold. Possibly the reasoning behind its use was of superstitious origin, but it undoubtedly did the intended job.

The hill people of the Ozark Mountains, referred to paralysis of the hind quarters in their livestock, as "Hollertail." Treatment of cattle with hollertail? Split the tail open and apply a mixture of salt and vinegar and wind the tail up with wool yarn. Though, some of the people believe that a mixture of salt and pepper is even better," Skold says.

Another common practice of the hill people was to tie a cord tightly around the tail to stop the bleeding of an injured leg. Skold adds that the people who practiced these methods of treating livestock also planted their gardens under the light of the moon!

Superstitions, self-proclaimed experts and unknown cures for disease; all perpetrated the early practices of veterinary medicine. With the instigation of scientific research and trained "animal doctors," these remedies are now only a source of humor for historian.

So the next time a horse falls under the evils of the fever, the owner can call the veterinarian or if that doesn't help, sing Psalms into the poor animal's ear!

Conformation

Present goals of the livestock industry entail more output for less input. According to Dr. Lauren Christian, swine specialist at Iowa State University, before these industries will produce large volumes of output the producers must have the ability to convert great quantities of raw material into a desirable product.

How does this relate to the livestock industry? Looking specifically at swine, Christian stated, "This is characteristic of the pig of today. He is one that combines rapid growth rate and later maturity. This doesn't mean slowness of growth but rather a pig that continues to produce a lean carcass and a higher degree of muscularity to higher weights."

Christian listed three factors pertaining to the efficiency of the modern hog.

"First of all, the hog of today is more efficient, because he is a leaner animal. Lean growth is efficient growth. It simply takes much less energy to put on a pound of muscle than a pound of fat."

"Secondly, this modern pig is more stress resistant. He's not going to die of stress so a producer will not have the three-to-five per cent that check out (die) on the way to the market place," he said.

Finally, "there seems to be a great deal of indirect evidence that these larger-framed, more loosely-structured animals, are better mothers. They farrow larger litters and are not upset nearly as much when they are moved into a farrowing stall," Christian said.

Why then, in the past, was selection directed towards the fatter and earlier maturing animal? Dr. Paul Brackelsberg, beef specialist at Iowa State, explained that the type of animal selected is partly dependent on the country's economic situation. For instance, a premium was paid for fat animals during World War II. The triglycerides found in animal fat were a source of nitro-glyerine used in the manufacture of ammunitions.

"Consequently, we saw a price premium so that the swine and beef industries could profitably produce animals that had lots of fat," he said.

Marketing techniques influence livestock types also. During the latter 1800's and early 1900's, inefficient transportation systems existed. The common way of taking livestock to market was by herding them in droves. The difficulty of transporting a given poundage was decreased by putting more pounds on a given animal, Dr. Christian said.

Consumer demand has influenced the idea of the lean market animal. In the mid-1950's, the selection program in the swine industry leaned towards the muscular hog. These pigs were described as having a ham shaped like a basketball and weiner-shaped body. These individuals could produce an eight-inch loin-eye and have an inch or less of back fat, Christian said.

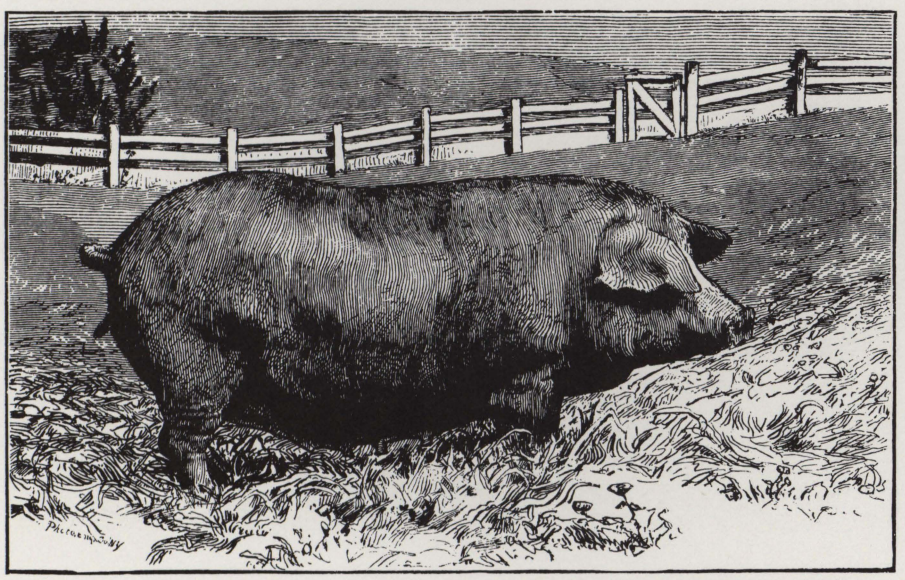
"The difficulty of those pigs was that they had a predisposition or poor adaptability to their environment. They commonly died of stress and produced pale, soft and exudative pork," he explained.

"It was then that most producers felt we needed to be more concerned with the over-all economics of hog production. True, we were producing a leaner hog, and we were still interested in good muscling but we were more concerned with the kind of muscle, good color, good marbling and good texture. Also, we were concerned about a pig that had the ability to produce large litters and grow rapidly."

The hog industry has re-aligned their priorities. Selection is directed towards larger-framed, later maturing, more rugged type pigs. Large substance of bone, more of a rectangular body shape with tremendous depth to their bodies, particularly up through the heart and fore-rib area, is being sought by today's producers. The looser structure allows this pig to move around in a confinement operation and stay sound in the legs. This type of hog is adaptable to any kind of environment and is flexible from the standpoint of the market weight we may choose to take him, Christian said.

Today's livestock standards are set through a combination of objective and visual evaluation. But, in the past, the pace-setter of the

Ideals - Past . . .



Shapes Up ... and Present

by Linda Blake

industry, was the showing.

"There was a time, when the selection of pigs (and cattle) was almost entirely subjective. Here, visual appraisal was the only avenue on the most part used to decide which animals were the best," Christian said. "We recognize that there is some 'faddism' involved in the showring. Just because somebody says, 'this type is the ideal type,' many others tend to follow. I think that over the past fifty years, we can identify people who have started fads in the showring," Baackelsberg said.

For example, "the fad that eventually brought the cattle industry to dwarfism. I think that some of the leading beef producers and prominent university personnel who were judging cattle were selecting for an earlier maturing, smaller, blockier calf. This selection increased the frequency of dwarfism to such an extent that in the early fifties, our industry had to take major efforts to expel this gene, he stated.

"I think that part of the reason for going to the smaller earlier maturing type, may have been a fad. Likewise we've been going through the biggness fad during the last few years. I'm calling it a fad because: 1) I don't believe that the consumer demand is greater for the larger, more growthy, bigger-framed cattle. and 2) I don't believe that the producer's interest is being met just because the animal is longer and taller. Consequently, I have to conclude that the amount of emphasis being placed on bigness is probably being influenced by faddism," Brackelsberg quipped.

"That 'bigness' fad has probably peaked because we are seeing less interest in advertising the biggest bull in the breed journals, and fewer of the 13 or 1400 pound steers are chosen as champion of our major shows," Brackelsberg continued.

Christian commented, "Today, the selection is a combination of visual appraisals used with more direct measures of performance. I think the biggest contribution made by the showring is simply providing a showplace for the producer to display his wares. He can exchange and communicate ideas. He can even exchange pigs with other breeders, get some new germ plasma to take home and to get some new ideas on how he can improve his operation."

"There was a time, when all a pig had to have was a purple ribbon to sell for a high price. The high selling animals today are those that have a combination of desirable type and excellent evidence of productivity. I think that will continue to be the case," Christian said.

"Most of our shows are attempting to become more progressive and use other information in addition to simple appraisal," he said.

Christian added, "there are things that we definitely can see and need to evaluate into our breeding programs. Whether or not they need to come to a common place for those evaluations to be made, is questionable."

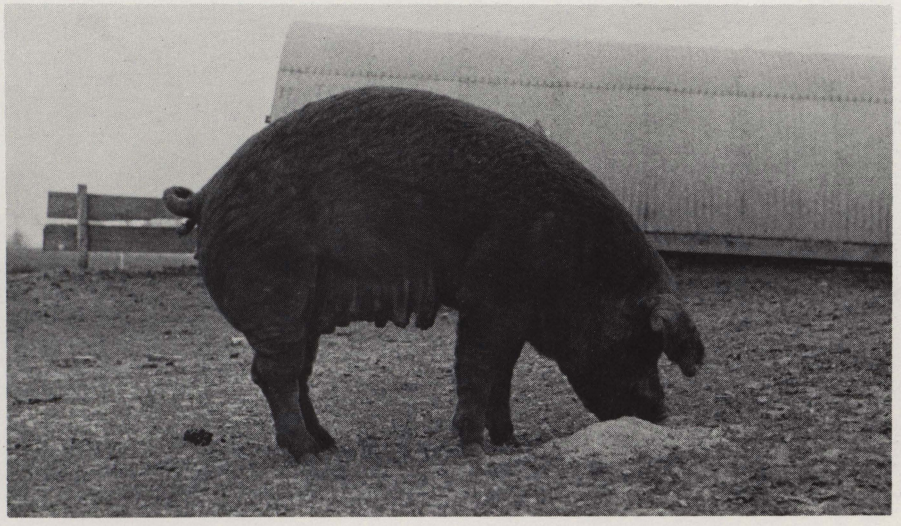
Visual appraisal is valuable in determining feet and leg soundness. To raise hogs in confinement, soundness is a very important factor, a factor that can be judged visually, he continued.

Also, today's sows must have underline soundness to carry the larger litters that we are striving for. If a sow has 16 pigs, she must also have 16 nipples, Christian said.

As far as the showring leading the market industry in the wrong direction, Christian reviewed the discriminant types influenced by the show ring.

"The cattle industry is broken into two parts. One group of people believe everything important in beef cattle can be measured with the scale. The people on the other side of the cattle business, are in it for the hobby and entertainment that is associated with the industry. These people use it as somewhat of a tax write-off."

"The hog industry on the other hand, is a seedstock business. The private breeders of swine are not being segmented, at least to that extent. The breeders that are doing the most outstanding job of putting hogs in the central testing station and are consistently at the top of the central test, are the same breeders that are competing in the showring. We've not had the separation into a



showring group and the performance group. Our best herds using one criteria for their evaluation are the best for the other one as well. I think that's good. This has kept the private breeders thinking along the same line and all striving for a valid common goal," Christian said.

Visual appraisal is indeed valuable for detecting harmful traits. For example, hogs with stress susceptibility, can be detected by visual examination, explained Dr. Christian.

"In our herd that we've set aside to do stress research, if Dr. Daryl Kuhlers and I go and visually evaluate these herds for stress susceptibility, we would be about 75 or 80 percent accurate on visual appraisal alone when we have no knowledge which pigs are at that point," he said.

The University has served major roles in other parts of the livestock industry as well. The college personnel are possibly best known for their role in the extension service and as livestock judges.

In addition, major contributions have been made by I.S.U. professors. This includes Dr. Hazel's development of the back-fat probe. Working with Dr. Hazel, Dr. E. Kline correlated the measurements of the live pig and the carcass results. So what? No longer did two pigs from a litter have to be slaughtered to estimate what the litter-mates were like from the standpoint of lean!

In 1966, the first boar testing station in the nation was developed by Dr. Hazel and the animal breeding group at I.S.U. The Iowa Boar Testing stations have lead the way in improvements and use in selection and improvements and emphasis on performance testing, Christian said.

These contributions will have definite influences of the future types of livestock produced.

And what about the future market animal, the industry and our consumption of meat? Both Drs. Brackelsberg and Christian foresee a continuing increase in the per capita consumption of pork and beef. It is a luxury, but one that people all over the world have begun to expect.

"I believe that in the long term, our beef industry is going to produce lean meat as economically as possible. We will see greater usage of cellulose forms of energy (or roughages) as contrasted to the traditional high concentrate rations. Consequently, with the greater use of less expensive feedstuffs, we may find a change in the type of animal which will make more efficient utilization of them," Brackelsberg said.

"I see as we go to more fabrication of cuts, that the size of the market pig will become less important and the size of the cut will become less important. As we develop a pig capable of going to higher weights and staying lean, I see increased market weights of animals going to market. I see 15 years from now, 300-pound market pigs could become common place, because it costs no more to kill a pig at 300 pounds than at 200. We have strains of pigs capable of going to 300 pounds and staying free of fat. Because they stay free of fat, they do it efficiently," Christian said.

"Another consideration, is that the consumer will continue to abhor fat. No longer do we have a working public that can burn up the number of calories they once did. As we become more calorie conscious, we will be willing to further reduce caloric intake. I believe our industry is going to continue to favor an even leaner animal, and in the long term expect the consumer will accept even less fat than currently required for the U.S. choice grade," Brackelsberg concluded.

Iowa's resale barns are still going strong.

by Ron Sterk

Economics and convenience are two terms that have prodded farmers since a wooden plow turned the first furrow in the New World.

Agriculturists have always looked for ways to produce the most with the least effort. The wooden plow gave way to iron and steel. Threshing floors were replaced by steam-powered threshing machines. Tractors labored effortlessly compared to horses and oxen.

Other changes were less striking. There was no earth-shattering revolution in marketing farm commodities. Changes stemmed from necessity, aided by independent technological advances. The development of livestock auctions in Iowa is an example. Several factors led to the establishment and endurance of the local salebarn.

The Agricultural Experiment Station at Iowa State College of Agriculture and Mechanic Arts studied 48 community livestock auctions in Iowa during and prior to 1936. Some of the station's findings are included in the following.

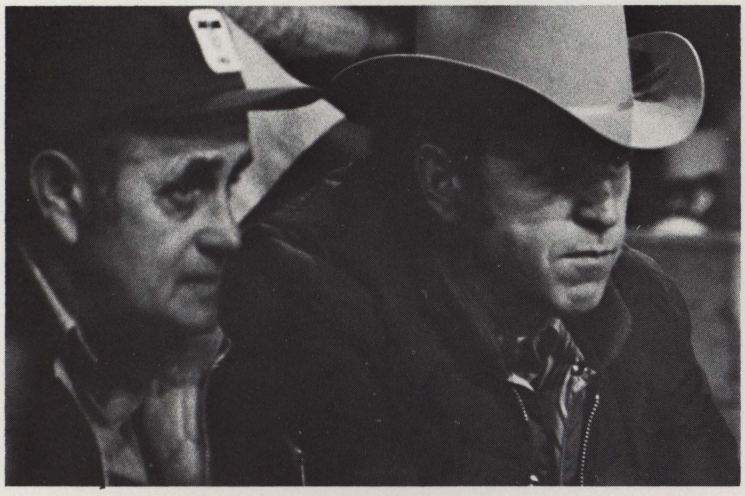
Iowa's first auction is thought to have been established at Union in 1904. Union is about 40 miles northeast of Ames and had a 1975 population of 484. Sales at Union were usually held once or twice a month from September to March. The owner, A.P. Mason, advertised his seventy-ninth sale as starting at "10:00 a.m. in a heated, seated and electric-lighted pavilion" on March 17, 1911.

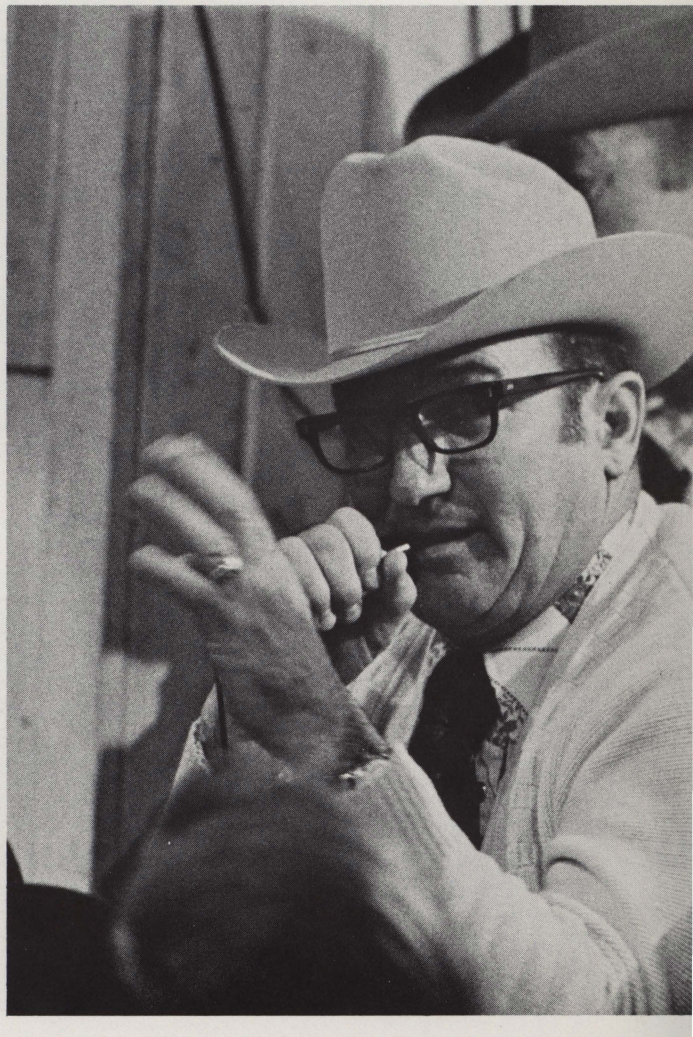
Salebarn establishment continued slowly for the next two and one-half decades. By the end of World War I, only eight auction barns existed. In 1929 some 25 auctions were in operation. All were scattered fairly evenly throughout the state.

Reasons for establishment of early salebarns are many, but economics and convenience are the main reasons. By the turn of the century, the day of the cattle drive was all but over. The phase-out began with the increased popularity of railroads in the second half of the nineteenth century. But farmers also wanted local markets. Aided by construction of hard surface roads and increased use of trucks after 1900, Iowa farmers found it possible to have a local outlet for finished and fat livestock.

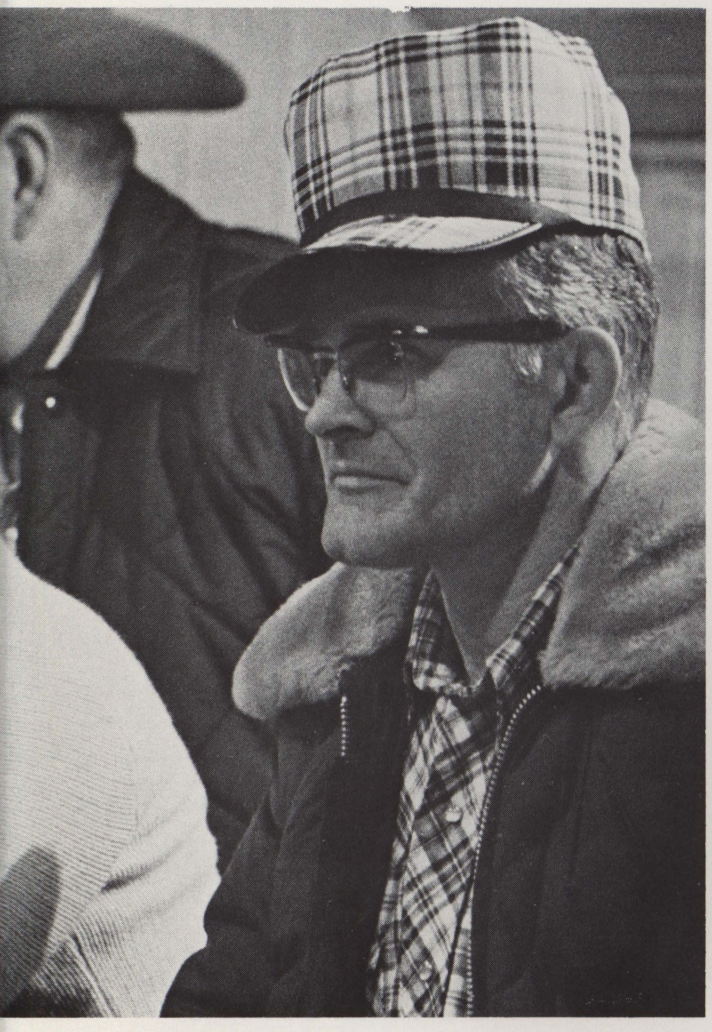
In general, development of auctions across the United States coincided with a more uniform grade standard for livestock and the establishment by federal government of extensive and more reliable

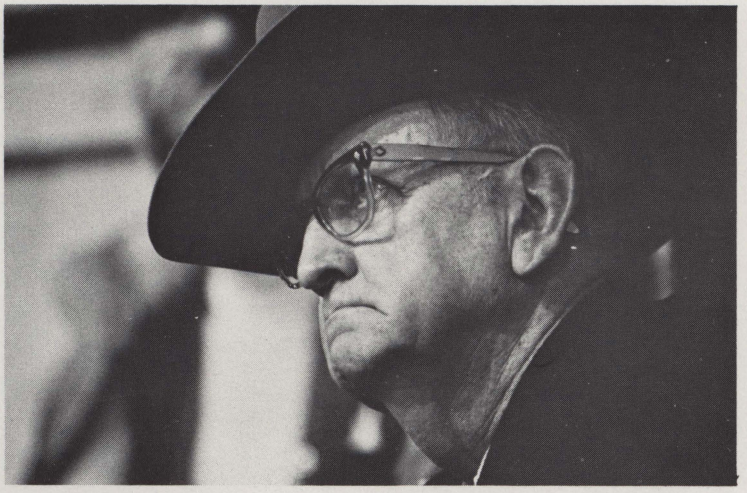
AUCTION

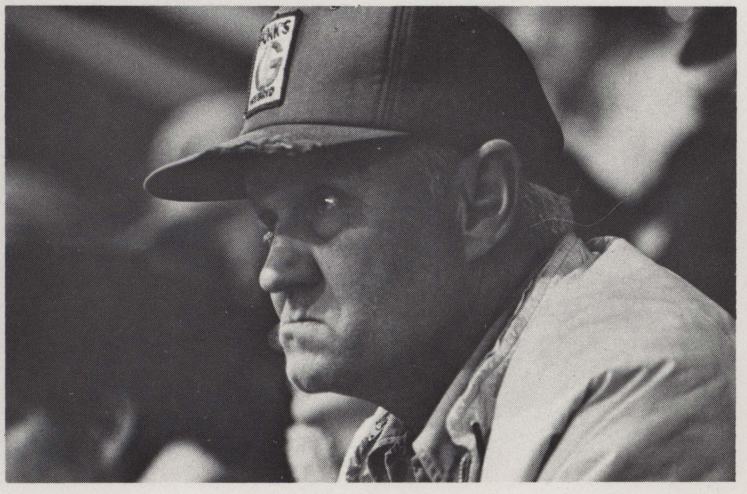




photos by Terry Schild







facilities for collection and dissemination of market news. Also, passage of animal health and inspection laws assured farmers that they were buying livestock at minimum risk.

Salebarns had their heyday in the 1930's. One hundred seventy auctions operated between 1930 and 1936. A total of 278 actually began selling, but at least 112 were unsuccessful and went out of business in that time. The big years were 1933, '34 and '35 when 60, 78 and 77 salebarns were established, respectively. A total of 79 operations went out of business in those three years. Perhaps the toughest year was 1936 when 47 auctions began and 33 closed their doors.

The total of 195 salebarns in 1936 is the highest ever in Iowa. Two main reasons account for the upsurge in numbers of auctions during this time—the depression and drouth.

Livestock prices declined for three consecutive years from 1930-32. Because of low prices, transportation and marketing costs took a larger bite from the sale of livestock. Attempts to minimize costs made local markets appealing for two reasons. First, transportation costs would be low. Second, cost of selling at most salebarns was based on percentage of selling price. Thus, if animals were cheap, the commission would be low.

Drouth causing uneven distribution of feed in 1934 and '36 also encouraged local auction establishment. Many farmers were forced to liquidate livestock. In southern and western Iowa and in other western states where rain was lacking, farmers did not have the grass to maintain or the grain to finish animals. They would sell at auctions hoping for buyers from less drouthy areas. Some farmers hauled animals to sales in wetter parts of Iowa where there was a chance of better prices.

Another reason for increased auction numbers was the shortage of work. Some salebarns were started by the operators for their own employment during hard times.

Capital requirements for starting auctions was not great by today's standards. Twenty-seven of the salebarn operators in the Iowa State study owned all facilities. The average investment was $7,276, ranging from under $1,000 to over $12,000.

The value of trade at the auctions in the study varied from $40,000 to over one million dollars yearly. The average was $346,176 in 1936.

Design for the barns was much like those of today. Most consisted of the sale pavilion, housing the sale ring, auctioneer's box and buyer seats. Pens and alleys were either covered or open. Only 80 per cent of the auctions had scales in 1936.

Cattle and calves accounted for 49 per cent of the total animals sold at auctions in the study. Of those, 55 per cent were stockers, feeders and breeding stock and 45 per cent were bought for a slaughter.

Hogs made up 40 per cent of the trade. Four-fifths of those were bought as stockers, feeders and breeding stock. Only 20 per cent of the swine was bought for slaughter.

Sheep and lambs constituted seven per cent, and horses and mules made up the final four per cent of the volume.

The local aspect of salebarns is illustrated in the types of buyers and sellers. Farmers supplied 64 per cent of the cattle, 73 per cent of the hogs and 84 per cent of the sheep. Farmers also bought 84 per cent of the stockers, feeders and breeding stock of all animals.

The trend continues today. Major emphasis is still on feeder cattle. Feeder pigs are also important, with some auctions specializing in feeder pig sales. Breeding stock is usually sold at special sales today. Still, auction markets remain the key outlet for the local farmer.

The 1936 study predicted that most auctions will serve mainly as local clearinghouses for immature, unfinished stock and for breeding animals. Because salebarns still woo the farmers' desire for economy and convenience, coupled with lower transportation costs of pick-ups and fifth-wheel trailers, that prediction, for the most part, has been correct.

Small Grains

by Jeanne Michels

Today, Iowa's leading crops are corn and soybeans. But only recently has soybeans gained the number two spot. Until 1961, more acreage was devoted to oats than soybeans.

Since then, oat production has decreased greatly while soybeans increased. This has been the plight of most of the small grain crops grown in Iowa.

According to Garren Benson, extension agronomist at Iowa State University, oats have been replaced by soybeans because of the high protein and oil found in soybeans making soybeans more profitable to grow. Another reason is that a lot of oats were formerly grown for horse feed; but with the coming of the motorized age, oats became a feed chiefly for young stock and poultry.

The story of wheat is much the same. At one time during this century, nearly one million acres were devoted to wheat but this figure then dropped to less than 30 thousand.

The trend in Iowa seems to have been toward the two more profitable crops, corn and soybeans. But, since 1973 soybean acreage has dropped by one million acres, and oat acreage has increased by .5 million acres, thus reversing the long time trend. Wheat acreage also increased, to 100,000.

According to Benson, "It's too early to tell if this is a trend, because much of the slack in soybean acreage has been taken up by corn."

He cited the weather and straw prices as reasons for the recent increase in oat acreage. Because of the possibility of drought, farmers, especially those in northern Iowa, plant oats as a weather hedge. Some farmers are planting oats because of the high price of straw. Few straw crops are grown today and the demand for straw has increased with the rising horse population in Iowa.

Oats have regained some of their popularity because of the introduction of new oat cultivars which are resistant to oat rust.

One of the biggest drawbacks for oats is that it has not accomplished the large yield breakthroughs that rice and dwarf wheat have experienced.

At present, oat research is being conducted by Kenneth Frey, ISU agronomist. Interest is strong in this area because the quality of oat protein does not decline as the protein level increases, as is the case for most cereal grains.

Breeding for improved quality of oat protein could be profitable in the future, speculated Benson. High protein oats could put oats in a very competitive position. They could be used in many low protein countries. This type of oats could be comparable to high lysine corn.

According to Frey, commercial corn samples average only 10.4 per cent protein, whereas oats average over 13 per cent. The big limitation is that corn is deficient in certain amino acids.

Contrary to the situation with corn, barley and wheat, the protein composition data suggests that the biological value of oat protein does not deteriorate as the protein percentage in the grain increases.

There presently appears to also be an increased interest in wheat. Approximately 100,000 acres were grown in 1975. Reasons for the renewed interest in wheat and other small grains include: (1) Government restrictions on wheat acreage have been removed. (2) Value of both grain and straw has increased. (3) A much lower cash outlay is required for small grain production than for corn or soybeans. (4) There is less soil erosion than with row crops. (5) Winter wheat is less likely to be affected by drought.

Benson also predicted that if Iowa continues to have dry weather, more acreage will be devoted to grain sorghum.

Possibly Iowa is seeing a return of small grains. With the fear of drought and the recent pressure for soil conservation, small grains could begin to play a bigger part in Iowa's agriculture.

Thailand

by Marcia Zarley

Thailand's three-year-old contract is still a newcomer to Iowa State's international interests. Many individual professors, including Dr. Heady and his staff, have made world-wide agricultural contributions throughout Iowa State's history. With financing from AID and the Ford Foundation, ISU has:

- Furnished staff members to help Peru improve agricultural planning. Iowa State University personnel are helping complete national analysis of the agricultural sector.
- Encouraged higher agricultural productivity by educational exchanges with Peru. More than 75 Peruvian students have received training in economics, statistics and other disciplines at Iowa State, and 18 faculty members have served in Peru.
- Assisted Uruguay in a program emphasizing agronomic studies.
- Developed university programs in agriculture in Brazil.
- Helped establish grad programs in ag economics and statistics at the National School of Agriculture in Chapingo, Mexico.
- Strengthened the undergrad agricultural business program at Monterrey Tech and the University of Nuevo Leon in Monterrey, Mexico.

The benefits of overseas programs spread to many other people besides participants. "Staff members learn through their research results and foreign experiences," a former chief-of-party in Latin America says. "But students also benefit because their professors are better grounded in the international aspects of agriculture."

Story on page 20

Thailand

Planning the economy of a foreign country is an awesome task, but Iowa State's agricultural economics project in Thailand is an international showcase. Both the Food and Agriculture Organization (FAO) of the United Nations and the Agriculture Development Council (ADC) are encouraging other developing countries to model their economic planning after the ISU-Thai experience.

Iowa State and Thailand's exchange is one of several programs coordinated by the International Agricultural Programs office. The office also advises FAO and AID sponsored students and supervises Iowa State's international contracts.

Iowa State's contract with Thailand began in 1973 when three ag economists, under the direction of Dr. Earl Heady from ISU, were hired to help formulate agricultural policy. Research and policy-making was a joint effort by the ISU ag economists and the Division of Agricultural Economics (DAE) in Thailand's Ministry of Agriculture and Cooperatives.

Currently, six Iowa State staff members are stationed in Thailand, while Dr. Heady directs the team from Ames. Last summer, the U.S. Agency for International Development (AID) and the Royal Thai Government extended Iowa State's contract to July 1978.

"Our main purpose is to build national programming models of the whole agriculture sector. We want to find the best investment policies and ways to develop agriculture and food supply," Dr. Heady said.

But ISU's project is also unique because its experts act as teachers and co-workers in addition to being consultants. One staff member who returned from Thailand last summer, Dr. Keith Rogers, reported, "The focus of this contract is on building capability, not just models. . ."

First, the economists considered Thailand's rural-agrarian character. The 21.8 million people living in rural households represented 64 per cent of the nation's population. And agriculture employed an even larger segment of the population—nearly three-fourths of the total labor force. Yet great disparity existed between farmers and city dwellers. In 1970, the average net income per rural household was $75 from farming. On the average, this amounted to less than $13 per capita. In contrast, however, the average per capita income within urban areas was $315 per year.

Although Thailand is the sixth largest producer of rice in the world, it still has tremendous producing ability, Dr. Heady noted. Thailand's per acre yields for selected crops are near the bottom of the list when compared to neighboring countries. Taiwan and Japan's rice yields for example, are two to three times that of Thailand.

"They need to put a big thrust into improved technology," he said, "including new varieties of crops, fertilizers and pesticides."

But all previous plans to solve these problems have failed to give specific guidelines. "In the past, development plans said we should invest more money in research or agricultural commodities to increase yields, but the plans didn't say where or why," Dr. Heady said. "So we built the models to say where and why investments should be made."

The ISU-Thai recommendations are based on grassroots research. Their strategy was to study the country region by region, then link each region into a national economic plan. To do this, the country was divided into nine regions and 19 agri-economic zones. Each area was classified according to climate, land types, crops, industry, etc. This data was then used in formulating the next five-year plan for Thailand, but the models and research capability will be used to continually analyze policy alternatives.

"We've had so much success that we've been asked to do the same thing in the rest of Southeast Asia," Dr. Heady said.

Plans for similar programs are being considered in Malaysia, Indonesia, Hong Kong, Taiwan and the Philippines. Last summer the FAO sponsored a series of seminars for Asian countries based on the ISU models. And ADC, an international foundation funded largely by the Rockefeller Foundation, is hosting a convention on the same topics this year in Singapore.

The program has gained worldwide attention because of significant progress in:

Inspection of field facilities is one of the group's jobs. The water from this well will irrigate area rice paddys in northern Thailand.

***Building models and applying results to regional economic development.** The first and most extensive model was for the Northeast region. Koset Manowalailao, an ag economic officer from Thailand studying for his PhD at Iowa State, said the team considered the Northeast Thailand region a strategic starting point. "The Northeast is the poorest area in the country and the one that needs the most development. It also borders on Laos and Cambodia, and many refugees settle there," he said.

The region covers 40 million acres, but only 25 per cent of the land is farmed. The terrain is hilly and wooded and the average farm is only 12 acres. Nearly 80 per cent of the 11.7 million people work in agriculture for at least part of the year, with seasonal unemployment common. The region's net cash income is 927 Bahts per household ($46 for every six people), far below the national average.

With these problems in mind, the ag economists studied demand for labor during the wet and dry seasons, income and production impact of off-farm employment, and supply of rice, kenaf, cassava and maize. As a result, the DAE recommended that the Northeast be developed in four stages.

1) Making credit available to improve agriculture at the present time. This will provide the "quickest and biggest return on investment," according to Dr. Heady.

2) Introducing technology including new crop varieties and more fertilizer. "Maize and soybeans grow well in the Thai climate," Dr. Heady said. "With technology they could be an eventual competitor with the Midwest."

3) Building a superstructure for farming. This would be the community development phase of agriculture, including improvements in roads, health and education.

4) Encouraging non-farm industry. This would increase rural income by providing jobs during the dry season. In the Northeast region alone, there are four million people who earn less than one Baht (five cents) per day during five months of the year.

***Advising the Cabinet on economic affairs.** Somporn Hanpongpandh, another DAE officer studying for his PhD at ISU, stressed the usefulness of ag economists in an agrarian society.

"The project is not all theoretical," he said. "As advisors to the Cabinet and the Prime Minister, we have a direct voice in policy-making."

He cited the case of fluctuating rice and grain prices before 1973. Although Thailand exported more rice than any other country in the Far East, it had few restrictions on the amount of grain that could be sold abroad until the ISU-Thai team suggested a buffer stock program.

In 1970, a ton of paddy (unprocessed) rice was worth only 400-500 Bahts ($20-$25). Now that world demand for grain is high and the government buys surplus rice and regulates exports, the farmer is guaranteed a minimum of 2500 Bahts ($125) per ton.

"We still have to justify our price to the consumer," Hanpongpandh said, "but we are more producer-minded now. After all, farmers are the greatest part of the population. The minority should have to pay the farmer a fair price for his product."

***Upgrading the professional skills of the Thai staff.** When the ISU team arrived, only 37 of the 725 employees of the DAE had completed their masters degrees, and there was only one PhD. In order to involve the Thais in the technical aspect of the program, the Iowa State economists taught classes in statistics, agricultural economics, economics and computer programming. The Thais also learned to develop economic models by working in a one-to-one relationship with the ISU team members on projects. This close working relationship was valuable to both parties, Hanpongpandh said.

"We've had many specialists work for us," he said, "but the ISU people have been the most effective. They work with us, just as if they were one of us."

Some DAE staff members like Hanpongpandh and Manowalailao are receiving their advanced degrees in the United States. Since 1973, 16 students have earned their masters degrees from ISU in ag economics, statistics and computer programming. There are three PhD students at this time, and seven more are scheduled to come next fall.

Dr. Heady said, "When we leave, they'll be able to do all the things that we're doing . . . We don't plan to leave a gap that can't be filled."

One of the project's goals is to make the economy more producer-minded.

The progress in the training is impressive. The Iowa State project was evaluated by AID in 1975 and received a very favorable rating. The report stated that, "The educational aspect is remarkable considering the short amount of time there . . . (and) the effects of the joint effort are likely to be long-term since the Thais are already trained to do much of the work themselves."

Thailand still faces many problems. It must decide how to improve technology, increase capital input, distribute water for irrigation and diversify crops. Most of these problems will have to be solved long after the ISU team has left. But the DAE officers are confident that they have received a sturdy framework with which to solve complex agricultural and economic problems. However, the Thais have one reservation about the ISU team leaving.

"We want them to stay as long as possible," Hanpongpandh said. "We're ready to stand on our own feet, but we don't want to lose good friends."

The Chinese are acutely aware of agriculture. This fact, along with the intensive use of labor, has allowed the Chinese to become practically self-sufficient in the field of agriculture. These are some of the observations made by John Schafer, associate professor of agronomy, who visited China last January.

Schafer said that even the schools in China are agriculturally oriented. "Everyone in China knows how to drive a tractor because they learned how to do it in physics class. The people are always aware of the problems, techniques, and methods of food production."

Although China is a nation of more than 800 million people, Schafer said that they are meeting their needs in terms of feeding the country. "They told us that they had no problem in meeting the people's needs, and we saw no evidence to the contrary." In fact, unlike Russia which has been forced to import large sums of grain in the last few years, Schafer said that the Chinese have no great needs for imported grains. "Their potential for export in China is greater than the potential for import."

Schafer said that actual production figures were hard to come by, but that this was not due to any attempt by the Chinese to withhold or misrepresent such facts. "They gather statistics differently than we do. They are primarily concerned with feeding people, and so what matters to them is how much you can produce per farm. The amount per acre, or their equivalent to this, doesn't make much difference to them. China's concern is in terms of, will a plot of land produce enough food to support the people living on it? We couldn't get really good yield figures because they simply don't think in those terms, he said.

Schafer said that China has made tremendous strides in improving its agricultural production in its 26 years of modern history under Chairman Mao. He said that the country uses large amounts of organic fertilizers. "They recycle every bit of organic waste from all sources and they're very good at this." Schafer pointed out that the Chinese are moving very rapidly toward the use of more chemical fertilizers, most of which are locally produced in China. "When you're getting 100 bu. wheat yields and 60 bu. corn yields in one year off of the same piece of land straight-cropping without a legume rotation, you've got to get the nitrogen to it," he said.

Schafer said that the exact ratios of nitrogen, phosphorous, and potassium used are again hard to determine because of the difference in the way figures are expressed. "But I'm quite sure that with these high yields that they are putting on 100-150 pounds of actual nitrogen, perhaps 50 pounds of phosphorous if they can get it, and occasionally potassium." In general, the Chinese use every bit of locally produced fertilizer they can get their hands on.

The Chinese are also making advances in the use of mechanization but again the advances are in their own terms. Schafer said that mechanization doesn't mean the same thing to the Chinese as it does to us. "To them if you plow and harvest without the back of a man or the back of an animal that's mechanization. So if the plowing is done by what we call a little garden tractor that's mechanization."

One of the real problems in understanding Chinese agriculture is that they don't have the same kind of monoculture that we have where a person can talk to two or three corn farmers and know the general means

of production of the corn crop, Schafer said.

Chinese agriculture can't be understood in the same way that American agriculture can. "The Chinese have so many options that they don't think in the broad general terms that we do and therefore they can't discuss them. It's just not the way that they think, and their statistics are just not organized so that they can really answer these questions," Schafer said.

Although Schafer said that he feels that the U.S. probably could learn nothing from the Chinese in terms of using some of their agricultural production methods, he did say that something might be learned from their philosophies. "They do a tremendous job in the area of recycling organic materials, and I think that we need to move in this area. But obviously we're not going to come up with the same answers that they do because we must do it within the framework of our own system."

Schafer went to China with a group billed as the Kansas Farmer's Tour which was organized by a Kansas farm group. He said that five of the total twenty-two members of the tour were from Iowa, and that the people came from a wide variety of backgrounds, from farmers' wives and rural priests to publishers of farm magazines.

The tour covered the area from about the southern edge of the central part of China (Shanghai) to the beginning of the northern region around Peking, Schafer said. According to Schafer, the northern part of China is where soil similar to that found in the Midwest is located, and the area is primarily used for corn, soybean and sorghum production. The central area was generally alluvial and loess soils and used mainly for wheat production and the southern part which receives the greatest amounts of monsoon rains produces mostly rice.

Schafer said that because the group was there in the winter they did not get to really observe much crop production with the exception of winter wheat and a few winter vegetables. "The area we were in was primarily wheat, but corn, cotton, rice and sorghum had also been grown."

Schafer said that though he wouldn't pass up another chance to go to China, his next goal is really a trip to Russia to observe how its form of socialized agriculture differs from that found in China. Schafer said that he is toying with the idea of taking an ag study group to China in the future, and hopes that his next trip to China is on a more research and education oriented level.

China has the technology to build machines, but would rather employ its people. Canals like the one above are built with much hand labor.

Eagles . . . pg. 6

size difference between eagles of the north and south latitudes. The wingspan of a bald eagle in Minnesota is, on the average, 10 inches longer than the wingspan of a Florida bald eagle.

But even with a wingspan of over seven feet, there is a limit to how much weight an eagle can carry. Average weights of adult birds run from eight to 13 pounds and Francis Herrick in his book *The American Eagle* says that a bald eagle cannot lift a body in excess of its own weight.

This naturally leads to the question of whether or not a bald eagle can carryoff a baby. Herrick takes a firm stand here, and says, "Notwithstanding the great amount of rubbish that has been written on this subject, it is doubtful if a single unprovoked attack upon child or adult has ever occurred in this country. Fabrication in dealing with this matter has become such a seasonal habit with a certain class of news-writers that no account can be accepted unless based upon verifiable evidence which seems to be invariably lacking."

Herrick cited one such "fabricated" incident that appeared in an old issue of *American Ornithology*. "A woman who happened to be weeding in a garden, had set her child down near, to amuse itself while she was at work, when a sudden and extraordinary rushing sound, and a scream from her child alarmed her, and starting up, she beheld the infant thrown down and dragged some few feet, and a large bald eagle bearing of a fragment of its frock, which being the only part seized, and giving way, providentially saved the life of the infant."

But such writing is blasphemous and gives the impression that eagles are incapable hunters. Nothing could be farther from the truth; eagles are excellent hunters. Their diet consists mainly of fish, of which Herrick says they are "notoriously fond," and they are perfectly capable of swooping down and picking them off the surface of the water.

During two consecutive years of observing a pair of eagles near Lake Erie, Herrick said that fish constituted 70 per cent and 96 per cent of the prey brought back to the nest.

The eagle's hunting success ratio is amazing. During one 38-day period, Herrick noted 109 hunting ventures by the eagles, of which they returned with prey 105 times. In this task, the female was nearly twice as active as the male, and did a majority of her hunting before 9 a.m. and after 3 p.m., Herrick said.

But the eagles' diet is not restricted solely to fish. Arthur C. Bent in his book *Life Histories of North American Birds of Prey* says, "The eagles bill of fare is most varied, especially during the seasons when fish are not easily obtained. It includes all kinds of waterfowl, grebes, loons, gulls, cormorants, coots, all kinds of ducks and geese, grouse ptarmigan, and even smaller land birds. Many kinds of small mammals are taken; fox farmers complain that eagles kill many young and even adult foxes; even the porcupine has been attacked, with disastrous results for the eagle; hunters complain that eagles kill young fawns and sometimes older deer. As eagles do not disdain carrion they may often be seen in company with ravens feeding on the carcasses of any animals they can find," Bent said.

One particularly interesting feeding incident taken from *The Life Histories of North American Birds* by G. Charles Bendire shows that eagles can and will enter the water when seeking their prey. Bendire says, "The other day I noticed a bald eagle hovering over the sound, much the same as the fish hawk (osprey) does when about to strike a fish. Suddenly he plunged down and grappled with what I supposed to be a large fish, but was unable to raise it from the water. And after struggling awhile he lay with wings extended and apparently exhausted. After resting a minute or two he again raised himself out of the water and I saw he had some large black object in the grasp of one of his talons, which he succeeded in towing along the top of the water toward the shore a short distance, and then letting go his hold. He was then joined by two other eagles and by taking turn they soon succeeded in getting it to the shore. Investigations proved it to be a large Florida Cormorant, on which they were about to regale themselves."

The bald eagle is not always the victor in ventures like this however. Herrick tells of an eagle that picked up a stray tom-cat in the fields, but before going far the eagle

"I wish the bald eagle had not been chosen, he is a bird of bad moral character . . ." Benjamin Franklin

"discovered that he had made a sad mistake, for Tom was soon tearing at his vitals. The cat showed fight the moment he recovered from his astonishment as being snatched up so unceremoniously, and he made such an impression on the neck and breast of his captor that the latter would fain have dropped him without much more ado; but Tom held on until the eagle, with feathers flying in every direction, descended to the ground and shook himself free of the outraged animal. The victor scampered away, and the wary eagle with labored flight rose again and made off for the mountains."

This story is similar to the curious case of a bald eagle that had been shot on the shores of Hamilton Bay, Lake Ontario. As recorded by Thomas McIlrath in the *Birds of Ontario,* "Dangling from the neck of the eagle was the bleached skull of a weasel, its teeth set firm in the skin of the neck."

Tom-cats and weasels are infrequent foes of the eagle however. Crows are a much more prevalent irritation. Herrick says that the crow hates the eagle, and that the eagle despises the crow. But to say that the eagle fears the crow, or any hawk, who may pester him is completely irrational.

"When an eagle is too bored or preoccupied, too lazy, or not in a pugnacious mood, and, above all, when there are no eggs or eaglets to be guarded, he may suffer almost any indignity short of direct attack; but the impudence of a heckler can be carried too far. Then all counterfeit marks of aquiline fear are instantly laid aside and in that case the extreme penalty is likely to be exacted," Herrick said.

The only real enemy that eagles have is man, and even that may be changing. Many groups such as the EVE are raising money to buy large tracts of land for eagle roosting, and the consequences for shooting or in any way taking an eagle have also stiffened.

Ken Kakac, Superintendent of Law Enforcement for the Iowa Conservation Commission said that since the federal Endangered Species Provision was passed in 1973, the maximum fine for shooting or possession of a bald eagle is $5000 or six months in jail.

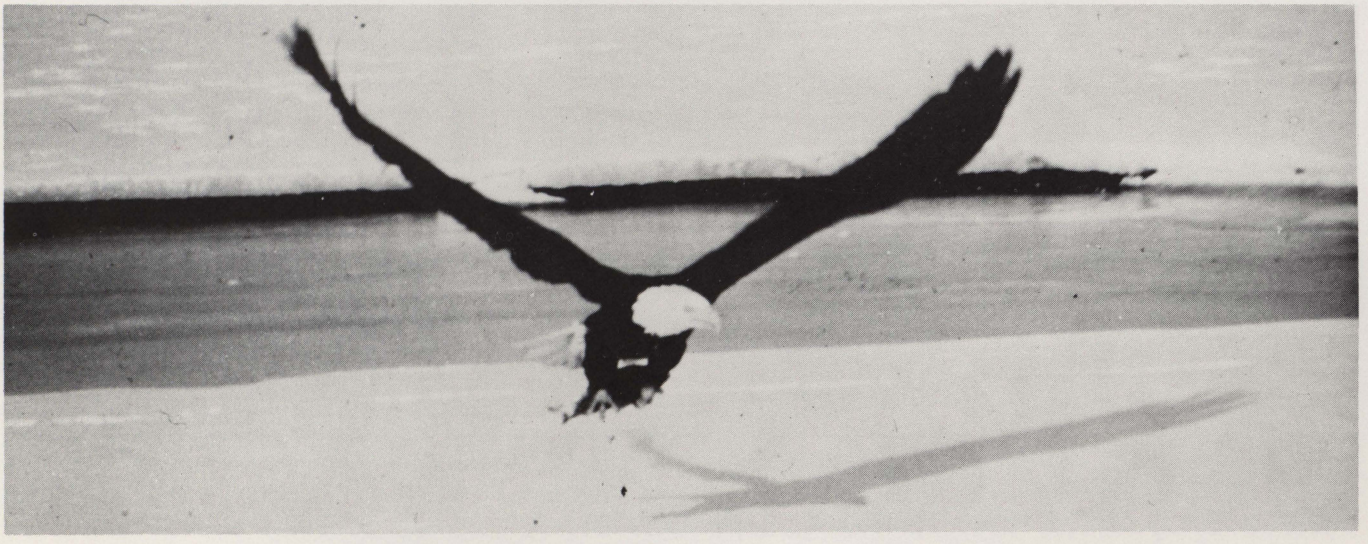
Along with that, anyone supplying information that leads to the arrest or conviction of a violator is eligible to collect an informants fee, Kakac, said. This fee may be up to one-half of the violators fine, and may total to a maximum of $2500, he said.

But, Warren Wilson, the game warden for Boone and Story counties, doesn't feel that there is an excuse for an "accidental" eagle shooting. He said, "There is nothing in the state of Iowa or the United States that can be legally shot that resembles a bald eagle. So, if they're shooting at some large bird that is hovering above them or sitting on a perch, they're breaking the law. There is just nothing that they're going to be shooting at that is legal to shoot at. A turkey, a hawk, a great horned owl, some of the larger soaring birds, all of them are protected by either state or federal laws."

The reason why laws concerning eagle violations are so severe is not only because eagles are somewhat of an endangered species, but also because they are the national emblem of the country.

Since the bald eagles' adoption on June 20, 1782 as the official emblem of the United States, its effigy "has been stamped upon every important public document issued by the government, as well as upon our coins and paper money, and has been more greatly multiplied and spread more widely over the face of the earth than that of any other living thing in the history of the world," Herrick said.

But the eagles have conquered more than money and official documents. Their image appears in a surprising number of places. In architecture, as the emblem of countless organizations, on many state flags (includings Iowa's) and atop the poles that fly them, on postage stamps, and even on check blanks, the bald eagle has certainly made its mark.



Young Farmer

by Linda Blake

In one crashing moment, life caved in for the Mortenson family.

Ed Mortenson was working in a grain elevator when unexpectedly, it buckled under the pressure of beans stored within its walls, collapsing and pinning the farmer beneath the rubble, crushing him to death.

The destiny of a 14-year-old boy, lay reconstituted in the shambles of a grain elevator that dreary fall day. Awakening to the harsh reality of the outside world, Tim confronted decisions few his age must face. Now, it was "his farm" and "his family."

Prior to the accident, the Mortensons were a typical farm family. Ed Mortenson farmed several hundred acres of prime farmland which provided a comfortable living for his wife and son. Mrs. Mortenson, involved with chores in the home, left the farming entirely to her husband. Tim helped his father on the farm but his main activities were directed towards sports and professional groups at school, planning ahead to a possible career as a sports newscaster.

In a matter of a few months, Tim matured several years. Scorning self-pity, Tim picked up the pieces of his life and looked to the future. He took command, declaring that he would continue to operate the farm.

The odds were against Tim. Much of the Mortenson land was rented. Consequently, most of the ground was relenquished back to the owners. Left with a fraction of the original farm, Tim was determined to try.

"I thought he should work with someone, stay on the farm and rent the land out," Mrs. Mortenson said.

She was pessimistic about her son's attempt to reap a harvest off the land. "After all, he was only 14," she sighed. "It all worked out." She glanced at Tim with obvious pride and affection.

The tassled blond hair, the boyish grin and avoiding eyes—all depicted a young boy. Yet, the words Tim spoke were uttered matter-of-factly, with a firmness that comes with laden responsibility.

Contemplating that first season, Tim displayed a pride of his own. "I talked with some people and they didn't think I could do it, but my uncle and people I worked with felt I could. I helped my dad a lot and learned from him." He paused. "When my Dad was here." The last phrase slipped out with tenderness and some reverence.

"I had never planted corn before. The rows came out pretty straight. A neighbor helped me with my first planting. We took turns. He'd sleep and I'd plant until I got tired and then he'd take over. My uncle started planting the beans for me but I did the rest. It looked like a big rain was coming so I planted all night and finished the next morning. I got a little crooked there because I couldn't see my marks too well," he said. The laughter returned.

"A neighbor suffered a severe heart attack that first year and couldn't get his work done. Farmers around the area helped do the field work for him. I wanted to help them do the plowing but I was still puttering away on my farm."

During the summer, growing conditions were not ideal. Rising out of his chair, Tim sauntered to the window and explained as he gazed over his farm. "Our yields were really poor due to the hail. We should get 130 bushels per acre but that year we made only 35." His solemn blue eyes casting shadows on his words, Tim continued, "It started around 2 a.m. and continued until 2:25 a.m. It was as if someone was throwing baseballs at us." Tim shook his head and continued, "we had to re-shingle all the buildings. In some windows, it broke two thicknesses of glass. Along with this, we got five inches of rain."

Concern crept into Tim's voice as he diverted his talk still finds time to be a teen-age boy.

We have a ten-acre lake bottom down the road from the farm. Following the heavy rains, this filled with water. Some friends came out and brought a raft and we went swimming in the field. Dad always warned us not to swim in that area because of the open intakes that could suck us into them. We took our chances and as you can see, I'm still here.!" he exclaimed boyishly.

Concern crept into Tim's voice as he diverted his tlak from the destruction of his crops to the plummeting wildlife population that he cares so deeply about. "In the past, this area was thick with pheasants, fox and deer. It's a shame, especially about the pheasants. Some people aren't starving. They could leave them alone. They're so pretty. That is no sport to go out and massacre animals."

"It was fun plowing during the summer." Looking at his dog lying in the corner of the cozy kitchen, Tim mused, "three little fox pups would lay out in the sun where I was working. My dog would chase them but they would start to tease him by going after his tail."

Becoming serious once again, Tim conceded that this was what farming was all about, being your own boss and enjoying a close compatibility with nature.

Though farming is his first love, an education must be squeezed in during the day. Traces of regret entered Tim's voice as he recapped life at school. Before his father's death, Tim participated in football, basketball and baseball. Answering the heavy demands of the farm, Tim gave up the extra-school activities.

Tim's day begins long before it is time to go to school. "I work outside until 8 o'clock. At that time, I leave for school. I get out at 2 o'clock and come home and farm until evening. Standard time has caused me some problems because it gets dark so early. I don't like to work after dark because I'm afraid I'm going to run a rock through the equipment. Every time we break down, it's at night. That means more work before school."

Realizing that an education is needed in the future of a successful farm, Tim looks forward to attending a two-year college program, saying, "I can't see going though four years of college to be a farmer."

His father instilled in Tim that a farmer must be a combination banker and gambler. An education will pave the way to fulfilling these quotas.

"Ed always said that the products farmers produce are someday going to be in heavy demand throughout the world," Mrs. Mortenson said.

While most teenagers are scratching together enough money to pay their way to the show or to buy a pizza, Tim plans his income around a new plow or essential piece of equipment. "I'd like to have larger equipment but I don't have that much land. I can farm with the smaller equipment for the time being. When I get out of high school, I'm going to expand my farming and then I'll go to larger equipment. Mom wants to build a new house but I said we can't. We have to use the money for farming."

Although farming is Tim's first love, he and his mother realize the importance of an education.